AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Method for measuring a light flux backscattered by a dispersed medium located on a first side of a wall, by interaction with a plurality of light rays emitted from the second side of said wall which is opposite the first wall, said plurality of light rays being able to traverse said wall and being backscattered at least partially by said dispersed medium in the direction of receiving means located on the second side of the wall, wherein said method comprises at least the following steps:

- emitting said plurality of light rays in the direction of said dispersed medium and through said wall so that said dispersed medium is able to emit in turn, through said wall, a plurality of backscattered light rays with the aim of forming a backscattering spot in which at least one central zone in the form of a disc is defined, the centre of which corresponds to the luminous barycentre of the backscattering spot and the radius of which is equal to four times the maximum free transport length (l^*_{max}) of said dispersed medium, said backscattering spot being able to be imaged at least in part on said receiving means,

- forming said backscattering spot from backscattered light rays which have traversed said wall and, at least according to a direction extending from the luminous barycentre of said backscattering spot, are free of light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with said second side,

- measuring at least one spatial sample of a profile of the light flux in said backscattering spot, extending in said at least one direction, and

- recording the measurement of the light flux thus measured.

2. (previously presented) Method according to claim 1, wherein it comprises:

- forming said backscattering spot from backscattered light rays which have traversed said wall and, between two directions extending from the luminous barycentre of said spot, are free of light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with said second side,

- measuring at least one spatial sample of a profile of the light flux in said thus obtained backscattering spot, extending at least over a surface defined between the two said directions which intersect at said luminous barycentre.

3. (previously presented) Method according to claim 1, which comprises furthermore determining the values of the free transport length (l^*) and of the absorption length (l_a) using a determined photon-dispersion interaction model, from said spatial sample of a profile of the light flux.

4. (previously presented) Method according to claim 1, which further comprises avoiding the return into said dispersed medium of the light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with the second side.

5. (previously presented) Method according to claim 4, which further comprises associating a first surface forming the interface of said wall with said first side, with a second surface forming the interface of said wall with said second side, said first and second surfaces being parallel.

6. (previously presented) Method according to claim 5, wherein the usable half-width of said wall is less than or equal to twice the thickness of said wall minus four times the maximum free transport length (l^*_{max}) of said dispersed medium.

7. (previously presented) Method according to claim 4, which further comprises associating a first surface forming the

interface of said wall with said first side, with a second surface forming the interface of said wall with said second side, said first and second surfaces being non-parallel.

8. (previously presented) Method according to claim 7, wherein said first surface forming the interface of said wall with said first side is curved, and said second surface forming the interface of said wall with said second second side is flat.

9. (previously presented) Method according to claim 8, wherein said first surface forming the interface of said wall with said first side is cylindrical.

10. (previously presented) Method according to claim 7, wherein said first surface forming the interface of said wall with said first side is flat, and said second surface forming the interface of said wall with said second side is concave.

11. (previously presented) Method according to claim 10, wherein said second surface forming the interface of said wall with said second side is conical or truncated.

12. (previously presented) Method according to claim 1, which further comprises avoiding the total reflection of a light ray which has emanated from said central zone and has undergone a

total reflection on the surface forming the interface of said wall with the second side, though which the backscattered light rays pass which are intended to form said backscattering spot.

13. (previously presented) Method according to claim 12, wherein the formation of a light ray which has emanated from said central zone and has undergone a total reflection on the surface forming the interface of said wall with the second side is avoided by adopting an appropriate form of said interface surface such that the backscattered light rays which impinge upon said interface surface have an angle of incidence (α_i) which is less than the angle of total reflection.

14. (previously presented) Method according to claim 13, which further comprises associating a first flat surface forming the interface of said wall with said first side, with a second convex surface forming the interface of said wall with said second side.

15. (previously presented) Method according to claim 14, wherein said second surface adopts a spherical cap form.

16. (previously presented) Method according to claim 14, wherein said second surface adopts a truncated form.

17. (previously presented) Device for measuring a light flux backscattered by a dispersed medium located on a first side of a wall, by interaction with a plurality of light rays emitted from the second side of said wall which is opposite the first side, said plurality of light rays being able to traverse said wall and being backscattered at least partially by said dispersed medium in the direction of receiving means located on the second side of the wall, said wall being able to be traversed by said emitted and backscattered light rays, and to be in contact with said dispersed medium, wherein said device comprises:

- means for emitting, towards said wall, a light radiation which is able to traverse the wall and to reach said dispersed medium, so that the latter can emit in turn, through said wall, a plurality of backscattered light rays with the aim of forming a backscattering spot in which at least one central zone in the form of a disc is defined, the centre of which corresponds to the luminous barycentre of the backscattering spot and the radius of which is equal to four times the maximum free transport length (l^*_{max}) of said dispersed medium, said backscattering spot being able to be imaged at least in part on said receiving means,

- means for receiving light radiation backscattered by said dispersed medium through said wall and intended to form said backscattering spot, said receiving means covering at least one direction extending from the luminous barycentre of said spot,

- means for suppressing, from light rays backscattered by said dispersed medium, light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with said second side,

- means for measuring a spatial sample of the profile of the light flux received by one part at least of said receiving means.

18. (canceled)

19. (previously presented) Device according to claim 17, which further comprises means for calculating the values of the free transport length (l^*) and the absorption length (l_a) of said dispersed medium from a measurement of said spatial sample of the profile of the light flux.

20. (previously presented) Device according to claim 17, wherein said means for suppressing backscattered light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with said second side, comprise means for diverting, out of said dispersed medium, said light rays which have undergone a total reflection, said diverting means comprising the association of a first surface forming the interface of said wall with said

first side, and of a second surface forming the interface of said wall with said second side.

21. (previously presented) Device according to claim 20, wherein said first and second surfaces are flat and parallel, the usable half-width of said wall, with the aim of forming said backscattering spot, being less than or equal to twice the thickness of said wall minus four times the maximum free transport length (l^*_{max}) of said dispersed medium.

22. (previously presented) Device according to claim 20, wherein said first surface forming the interface of said wall with said first side is curved, and said second surface forming the interface of said wall with said second side is flat.

23. (previously presented) Device according to claim 22, wherein said first surface forming the interface of said wall with said first side is cylindrical.

24. (previously presented) Device according to claim 20, wherein said first surface forming the interface of said wall with said first side is flat, and said second surface forming the interface of said wall with said second side is concave.

25. (previously presented) Device according to claim 24, wherein said second surface forming the interface of said wall with said second side adopts a conical or truncated form, the axis of the cone or of the truncated part being perpendicular to the first flat surface.

26. (previously presented) Device according to claim 17, wherein said means for suppressing backscattered light rays which have emanated from said central zone and have undergone a total reflection on the surface forming the interface of said wall with said second side, comprise means for preventing the formation of a said light ray which has undergone a total reflection, on this said surface forming the interface of said wall with the second side.

27. (previously presented) Device according to claim 26, wherein said means for preventing the formation of a light ray which has emanated from total reflection, on the surface forming the interface of said wall with the second side comprise an appropriate form of said interface surface in order that the backscattered light rays which impinge upon this said interface surface have an angle of incidence (α_i) which is less than the angle of total reflection.

28. (previously presented) Device according to claim 27, wherein said means for preventing the formation of a light ray which has emanated from total reflection, on the surface forming the interface of said wall with the second side comprise a first flat surface forming the interface of said wall with said first side associated with a second convex surface forming the interface of said wall with said second side.

29. (previously presented) Device according to claim 28, wherein said second surface adopts a spherical cap form.

30. (previously presented) Device according to claim 28, wherein said second surface adopts a truncated form.